This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): A device for detecting neutral volatile chemical reagents in a gaseous sample, comprising:

a fluorescent material comprising at least one polymer-surfactant complex comprising:

a fluorescent, ionic conjugated polymer; and

an oppositely charged surfactant;

a contact region where a neutral gaseous sample may associate with the polymer-surfactant complex;

a light source that emits light to excite the polymer-surfactant complex and cause it to fluoresce; and

a detector that detects the fluorescent emissions intensity from the polymer-surfactant complex.

Claim 2 (original): The device of claim 1, wherein the polymer-surfactant complex is in a polar solution.

Claim 3 (original): The device of claim 2, wherein the polymer-surfactant complex in solution is in a container with at least a portion of the container being formed of a gas-permeable membrane, and wherein the contact region comprises the gas-permeable membrane.

Claim 4 (original): The device of claim 1, wherein the ratio of surfactant molecules per monomer repeat unit of polymer ranges from about 1:1 to about 1:10.

Claim 5 (original): The device of claim 1, wherein the ratio of surfactant molecules per monomer repeat unit of polymer is about 1:3.

Claim 6 (original): The device of claim 1, wherein the detector comprises a detection device and an output device.

Claim 7 (original): The device of claim 6, wherein the output device displays the fluorescent emissions intensity.

Claim 8 (original): The device of claim 6, wherein the output device transmits the fluorescent emissions intensity to a remote location.

Claim 9 (original): The device of claim 6, wherein the output device records the fluorescent emissions intensity for later analysis.

Claim 10 (original): The device of claim 6, further comprising:
at least one support structure;
an inlet; and
an outlet.

Claim 11 (original): The device of claim 10, wherein the support structure encloses the detection device, light source, contact region, and the fluorescent material; and wherein the inlet and outlet allow the gaseous sample pass by the contact region and associate with the polymer-surfactant complex.

Claim 12 (currently amended): A device for reusably detecting neutral volatile chemical reagents in a gaseous sample, comprising:

a fluorescent material comprising at least one polymer-surfactant complex comprising:

a fluorescent, ionic conjugated polymer; and

an oppositely charged surfactant;

a contact region where the neutral gaseous sample may associate with the polymer-surfactant complex;

a light source that emits light to excite the polymer-surfactant complex and cause it to fluoresce;

a detector that detects the fluorescent emissions from the polymer-surfactant complex; and

a vacuum device configured to evacuate the gaseous sample from the region of the polymer-surfactant complex after the complex has been exposed to the gaseous sample.

Claim 13 (original): The device of claim 12, wherein the polymer-surfactant complex is disposed as a thin film.

Claim 14 (original): The device of claim 13, wherein the polymer-surfactant film is a bilayer in which a film of the fluorescent, ionic conjugated polymer is covered by an outer layer of the oppositely charged surfactant.

Claim 15 (original): The device of claim 13, wherein the polymer-surfactant film is a solid precipitate that is formed by complexing the fluorescent, ionic conjugated polymer with a sufficient quantity of the oppositely charged surfactant.

Claim 16 (original): The device of claim 15, wherein the polymer-surfactant film is prepared by spin coating the solid precipitate from a solvent.

Claim 17 (original): The device of claim 15, wherein the polymer-surfactant film is cast from the solid precipitate.

Claim 18 (original): The device of claim 15, wherein the solid precipitate is formed by complexing the polymer and surfactant in a ratio of surfactant molecules per monomer repeat unit of polymer of about 1:1.

Claim 19 (original): The device of claim 12, wherein the detector comprises a detection device and an output device.

Claim 20 (original): The device of claim 19, wherein the output device displays fluorescent emissions intensity received by the detection device from the polymer-surfactant complex.

Claim 21 (original): The device of claim 19, wherein the output device records fluorescent emissions intensity received by the detection device from the polymer-surfactant complex.

Claim 22 (original): The device of claim 19, wherein the output device transmits fluorescent emissions intensity received by the detection device from the polymer-surfactant complex to a remote location.

Claim 23 (original): The device of claim 13, wherein the fluorescent material comprises an array of polymer-surfactant complex films.

Claim 24 (original): The device of claim 23, wherein each polymer-surfactant complex film comprises a different polymer-surfactant complex, and wherein the array of polymer-surfactant complex films and the detector are configured such that the detector can detect the presence and concentration of various volatile chemical reagents.

Claim 25 (new): A method for detecting the presence of a neutral volatile chemical reagent in a gaseous sample, comprising:

obtaining a fluorescent polymer-surfactant complex;

exciting the polymer-surfactant complex causing it to fluoresce;

monitoring a fluorescent emission intensity of the polymer-surfactant complex;

exposing the polymer-surfactant complex to a neutral gaseous sample; and

observing the change in fluorescent emission intensity of the polymer-surfactant complex.

Claim 26 (new): The method of claim 25, further comprising:

evacuating the gaseous sample from the polymer-surfactant complex; and

repeating the steps of the method of claim 25.

Claim 27 (new): The method of claim 25, wherein the polymer-surfactant complex is formed in a polar solution.

Claim 28 (new): The method of claim 25, wherein the polymer-surfactant complex is disposed as a thin film.

Claim 29 (new): The method of claim 28, wherein the thin film is prepared from a solid precipitate that is formed by complexing a fluorescent, ionic conjugated polymer with a sufficient quantity of oppositely charged surfactant.